Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

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#14, #16, and #18 NOVA™ and YUKON™ Fastener Properties

Trade Secret Report Holder:

Screw Products, Inc.

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CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES Section: 06 05 23 - Wood, Plastic, and Composite Fastenings

1 Innovative Products Evaluated[1]

1.1 NOVA and YUKON Fasteners

2 Product Description and Materials

2.1 The innovative products evaluated in this report are shown in **Figure 1**, **Figure 2** and **Figure 3**.

Figure 1. NOVA Fastener

Figure 2. #16 YUKON Fastener

Figure 3. #18 YUKON Fastener

2.2 *Product Description*

2.2.1 NOVA and YUKON Fasteners are construction lag screws intended for structural use in timber construction.

2.2.1.1 NOVA fasteners are partially threaded screws with a coin head and star drive.

2.2.1.2 YUKON fasteners are partially threaded screws with a hex head.

2.2.2 Fasteners are made of heat treated, hardened steel.

2.3 *Corrosion Resistance*

2.3.1 NOVA and YUKON Fasteners are coated with a proprietary Zytec™ GX coating that is equivalent to the protection provided by code-approved, hot-dipped galvanized coatings meeting ASTM A153, Class D (IBC Section 2304.10.6[2] and IRC Section R304.3[3]).

2.3.1.1 NOVA and YUKON Fasteners may be used as an alternative to the protection provided by code-approved hot-dipped galvanized coatings meeting ASTM A153, Class D (IBC Section 2304.10.6[4] and IRC Section R304.3[5]) where screws are required to exhibit corrosion resistance when exposed to adverse environmental conditions that are subject to the limitations of this report.

2.3.2 Zytec GX coating is tested and recognized for use in ground contact pressure-treated lumber (MCA), exterior, freshwater, general construction applications (i.e., Ground Contact AWPA UC1-UC4A MCA).

2.3.3 Zytec GX coated fasteners are approved for use in Fire-Retardant Treated (FRT) lumber, provided the conditions set forth by the FRT lumber manufacturer be met, including appropriate strength reductions.

2.4 The innovative products evaluated in this report are set forth in **Table 1** and **Table 2**.

Table 1. Fastener Specifications – NOVA

Fastener Name	Designation	Fastener				Diameter (in)			Nominal Bending Yield, F_{yb} (psi)	Allowable Fastener Strength (lb)	
		Head (in)		Length[1] (in)	Thread Length[2] (in)	Shank[3]	Thread				
		Diameter	Drive Type				Minor	Major		Tensile	Shear[4]
#14 NOVA	14 x 1"	0.531	TX30	1	3/4	0.173	0.156	0.246	175,900	1,130	855
	14 x 1 1/2"			1 1/2	1						
	14 x 2"			2	1 1/2						
	14 x 2 1/2"			2 1/2	1 1/2						
	14 x 3"			3	1 1/2						
	14 x 4"			4	2						
	14 x 5"			5	3						
	14 x 6"			6	3						

Table 1. Fastener Specifications – NOVA

Fastener Name	Designation	Fastener				Diameter (in)			Nominal Bending Yield, F_{yb} (psi)	Allowable Fastener Strength (lb)	
		Head (in)		Length[1] (in)	Thread Length[2] (in)	Shank[3]	Thread				
		Diameter	Drive Type				Minor	Major		Tensile	Shear[4]
#16 NOVA	16 x 2"	0.630	TX30	2	1 1/2	0.205	0.181	0.283	178,200	1,520	1,105
	16 x 2 1/2"			2 1/2	1 1/2						
	16 x 3"			3	1 1/2						
	16 x 3 1/2"			3 1/2	1 1/2						
	16 x 4"			4	2						
	16 x 4 1/2"			4 1/2	2						
	16 x 5"			5	3						
	16 x 6"			6	3						
	16 x 6"			6	5						
#18 NOVA	18 x 3 3/8"	0.728	TX40	3 3/8	1 1/2	0.226	0.209	0.315	161,000	1,800	1,465
	18 x 4"			4	2						
	18 x 5"			5	1 1/2						
	18 x 6"			6	3						
	18 x 6 3/4"			6 3/4	1 1/2						
	18 x 7"			7	3 1/2						
	18 x 8"			8	4						
	18 x 10"			10	4						
	18 x 12"			12	5						
	18 x 14"			14	6						
	18 x 16"			16	6						

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

1. Fastener length is measured from the top of the head to the tip.
2. Thread length excludes the knurl. The #14 x 1", #14 x 1 1/2", #14 x 2", #16 x 2" and #16 x 6" (with 5" thread length) screws have no knurl.
3. Shank diameter based on manufactured thickness with coating.
4. Shear determined at thread diameter for #14 and #16 screws and at smooth shank diameter for #18 screws.

Table 2. Fastener Specifications – YUKON

Fastener Name	Designation	Fastener				Diameter (in)			Nominal Bending Yield, F_{yb} (psi)	Allowable Fastener Strength (lb)	
		Head (in)		Length[1] (in)	Thread Length[2] (in)	Shank[3]	Thread				
		Diameter	Drive Type				Minor	Major		Tensile	Shear[4]
#16 YUKON	16 x 4"	0.472	5/16" Hex	4	2	0.205	0.181	0.284	178,200	1,520	1,105
	16 x 6"			6	2						
	16 x 6"			6	5						
	16 x 8"			8	2						
	16 x 10"			10	2						
	16 x 12"			12	2						
	16 x 14"			14	2						
#18 YUKON	18 x 4"	0.630	5/16" Hex	4	2	0.226	0.209	0.315	161,000	1,800	1,465
	18 x 5"			5	2 3/4						
	18 x 6"			6	2 3/4						
	18 x 7"			7	2 3/4						
	18 x 9"			9	2 3/4						
	18 x 11"			11	2 3/4						

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

1. Fastener length is measured from the underside of the head to the tip.
2. Thread length excludes the knurl. The #16 x 6" screw with 5" thread length has no knurl.
3. Shank diameter based on manufactured thickness with coating.
4. Shear determined at thread diameter for #16 screws and at smooth shank diameter for #18 screws.

2.5 As needed, review material properties for design in **Section 6** and the regulatory evaluation in **Section 8**.

3 Definitions[6]

3.1 New Materials[7] are defined as building materials, equipment, appliances, systems, or methods of construction, not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.[8] The design strength and permissible stresses shall be established by tests[9] and/or engineering analysis.[10]

3.2 Duly authenticated reports[11] and research reports[12] are test reports and related engineering evaluations that are written by an approved agency[13] and/or an approved source.[14]

3.2.1 These reports utilize intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secretes under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[15]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is accredited and listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[16]

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB[17] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[18] the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing[19] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.[20]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.[21] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[22] and can be used in any country that is an MLA signatory found at this link: https://iaf.nu/en/recognised-abs/

3.9 Approval equity is a fundamental commercial and legal principle.[23]

4 Applicable Local, State, and Federal Approvals; Standards; Regulations [24]

4.1 *Local, State and Federal*

4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes the following featured local jurisdictions and is not limited to: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, Texas Department of Insurance, and Wichita.[25]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes the following featured states, and is not limited to: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[26]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[27] and Part 3280[28] pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 *Standards*

4.2.1 *AISI S904: Standard Test Methods for Determining the Tensile and Shear Strength of Screws*

4.2.2 *ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction*

4.2.3 *ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus*

4.2.4 *ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood*

4.2.5 *ASTM D2395: Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials*

4.2.6 *ASTM D2915: Standard Practice for Sampling and Data-Analysis for Structural Wood and Wood-Based Products*

4.2.7 *ASTM D4442: Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials*

4.2.8 *ASTM F1575: Standard Test Method for Determining Bending Yield Moment of Nails*

4.3 *Regulations*

4.3.1 *IBC – 15, 18, 21, 24: International Building Code®*

4.3.2 *IRC – 15, 18, 21, 24: International Residential Code®*

4.3.3 *FBC-B—20, 23: Florida Building Code – Building[29] (FL 38731)*

4.3.4 *FBC-R—20, 23: Florida Building Code – Residential[29] (FL 38731)*

4.3.5 *CBC—19, 22: California Building Code (Title 24, Part 2)[30]*

4.3.6 *CRC—19, 22: California Residential Code (Title 24, Part 2.5)[30]*

4.3.7 *LABC—20, 23: Los Angeles Building Code[31]*

4.3.8 *LARC—20, 23: Los Angeles Residential Code[31]*

5 Listed[32]

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), an approved agency (i.e., CBI and DrJ), and/or and approved source (i.e., DrJ), or other organization(s) concerned with product evaluation (i.e., DrJ), that maintains periodic inspection (i.e., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 *General*

6.1.1 NOVA and YUKON Fasteners are used to attach wood framing members in conventional light-frame construction and provide resistance against withdrawal, head pull-through, axial, and shear loads.

6.1.1.1 See **Section 9** for installation requirements.

6.1.2 NOVA and YUKON Fasteners may be installed without lead holes.

6.1.2.1 Where lead holes are used, provisions from NDS Section 12.1.4 shall be followed.

6.2 *Design*

6.2.1 Design of NOVA and YUKON Fasteners is governed by the applicable code and provisions for dowel-type fasteners in NDS.

6.2.2 Unless otherwise noted, adjustment of the design values for duration of load shall be in accordance with the applicable code.

6.3 *NOVA and YUKON Fasteners Reference Lateral Design Values (Z)*

6.3.1 Reference lateral design values (lb) for shear load perpendicular to grain and parallel to grain for NOVA and YUKON Fasteners are specified in **Table 3** and **Table 4**, respectively.

Table 3. NOVA Fastener Reference Lateral Design Values (Z), lb[3,4]

Fastener Name	Designation	Nominal Length (in)	Thread Length (in)	Minimum Side Member Thickness (in)	Minimum Main Member Penetration[5] (in)	Wood Species (Specific Gravity)[1,2]					
						HF/SPF (0.42)		DF (0.50)		SP (0.55)	
						$Z_\perp$	$Z_\parallel$	$Z_\perp$	$Z_\parallel$	$Z_\perp$	$Z_\parallel$
#14 NOVA	14 x 1 1/2"	1 1/2	1	1/2	1	60	60	85	85	105	105
	14 x 2"	2	1 1/2	3/4	1 1/4	85	85	120	120	140	140
	14 x 2 1/2"	2 1/2	1 1/2	3/4	1 1/2	110	110	135	135	150	150
	14 x 3"	3	1 1/2	1 1/2	1 1/2	240	230	240	230	240	230
	14 x 4"	4	2								
	14 x 5"	5	3								
	14 x 6"	6	3								
#16 NOVA	16 x 2"	2	1 1/2	3/4	1 1/4	75	95	105	130	125	155
	16 x 2 1/2"	2 1/2	1 1/2	3/4	1 1/2	105	130	135	170	150	190
	16 x 3"	3	1 1/2	1 1/2	1 1/2	265	225	265	225	265	230
	16 x 3 1/2"	3 1/2	1 1/2								
	16 x 4"	4	2	1 1/2	1 1/2	265	225	265	225	265	245
	16 x 4 1/2"	4 1/2	2								
	16 x 5"	5	3								
	16 x 6"	6	3								
	16 x 6"	6	5								
#18 NOVA	18 x 3 3/8"	3 3/8	1 1/2	1 1/2	1 1/2	135	170	185	230	220	275
	18 x 4"	4	2	1 1/2	2 1/2	410	370	410	370	410	370
	18 x 5"	5	1 1/2								
	18 x 6"	6	3								
	18 x 6 3/4"	6 3/4	1 1/2								
	18 x 7"	7	3 1/2								
	18 x 8"	8	4								
	18 x 10"	10	4								
	18 x 12"	12	5								
	18 x 14"	14	6								
	18 x 16"	16	6								

Table 3. NOVA Fastener Reference Lateral Design Values (Z), lb[3,4]

Fastener Name	Designation	Nominal Length (in)	Thread Length (in)	Minimum Side Member Thickness (in)	Minimum Main Member Penetration[5] (in)	Wood Species (Specific Gravity)[1,2]					
						HF/SPF (0.42)		DF (0.50)		SP (0.55)	
						$Z_\perp$	$Z_\parallel$	$Z_\perp$	$Z_\parallel$	$Z_\perp$	$Z_\parallel$

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

1. Reference lateral design values apply to two-member single shear connections where both members are of the same specific gravity, and the fastener is oriented perpendicular to grain. Where the members are of different specific gravities, use the lower of the two.
2. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
3. Tabulated lateral design values (Z) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.
4. $Z_\perp$ = Lateral Design Values Perpendicular to Grain, $Z_\parallel$ = Lateral Design Values Parallel to Grain.
5. Fastener main member penetration is the length embedded in the main member, including the tip.

Table 4. YUKON Fastener Reference Lateral Design Values (Z), lb[3,4]

Fastener Name	Designation	Nominal Length (in)	Thread Length (in)	Minimum Side Member Thickness (in)	Minimum Main Member Penetration[5] (in)	Wood Species (Specific Gravity)[1,2]					
						HF/SPF (0.42)		DF (0.50)		SP (0.55)	
						$Z_\perp$	$Z_\parallel$	$Z_\perp$	$Z_\parallel$	$Z_\perp$	$Z_\parallel$
#16 YUKON	16 x 4"	4	2	1 1/2	1 1/2	130	165	180	225	200	250
	16 x 6"	6	2	1 1/2	3 1/2	140	175	180	225	200	250
	16 x 6"	6	5								
	16 x 8"	8	2	3 1/2	3 1/2	155	195	185	230	200	250
	16 x 10"	10	2								
	16 x 12"	12	2	5 1/2	5 1/2						
	16 x 14"	14	2								
#18 YUKON	18 x 4"	4	2	1 1/2	1 1/2	135	170	185	230	220	275
	18 x 5"	5	2 3/4	1 1/2	3 1/2	150	190	195	245	225	280
	18 x 6"	6	2 3/4								
	18 x 7"	7	2 3/4	3 1/2	3 1/2	175	220	210	260	225	285
	18 x 9"	9	2 3/4								
	18 x 11"	11	2 3/4								

Table 4. YUKON Fastener Reference Lateral Design Values (Z), lb[3,4]

Fastener Name	Designation	Nominal Length (in)	Thread Length (in)	Minimum Side Member Thickness (in)	Minimum Main Member Penetration[5] (in)	Wood Species (Specific Gravity)[1,2]					
						HF/SPF (0.42)		DF (0.50)		SP (0.55)	
						$Z_{\perp}$	$Z_{\parallel}$	$Z_{\perp}$	$Z_{\parallel}$	$Z_{\perp}$	$Z_{\parallel}$

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

1. Reference lateral design values apply to two-member single shear connections where both members are of the same specific gravity, and the fastener is oriented perpendicular to grain. Where the members are of different specific gravities, use the lower of the two.
2. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
3. Tabulated lateral design values (Z) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.
4. $Z_{\perp}$ = Lateral Design Values Perpendicular to Grain, $Z_{\parallel}$ = Lateral Design Values Parallel to Grain.
5. Fastener main member penetration is the length embedded in the main member, including the tip.

6.4 *Withdrawal Design Values*

6.4.1 The reference withdrawal design values (lb/in) in **Table 5** apply to the screws listed in **Table 1** and **Table 2**.

Table 5. Reference Withdrawal Design Values (W) – Side Grain Applications, lb/in[1]

Fastener Designation	Minimum Penetration Length[4] (in)	Wood Species (Specific Gravity)[2,3]		
		HF/SPF (0.42)	DF (0.50)	SP (0.55)
#14 NOVA	1	125	175	210
	2	260	260	260
#16 NOVA and YUKON	1	145	200	245
	2	260	260	260
#18 NOVA and YUKON	1	160	225	270
	2	265	265	270

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

1. Tabulated withdrawal values (W) shall be adjusted by all applicable factors per NDS Table 11.3.1.
2. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
3. The full design withdrawal value is equal to the reference withdrawal value multiplied by the length of the threaded portion of the fastener embedded in the main member.
4. Fastener penetration is the threaded length embedded in the main member, including the tip. For penetrations equal to or greater than 2", use the tabulated value for 2" penetration.

6.5 *Head Pull-Through Design Values*

6.5.1 The reference head pull-through design values (lb) in **Table 6** apply to the screws listed in **Table 1** and **Table 2**.

Table 6. Reference Head Pull-Through Design Values (P), lb[1]

Fastener Name	Wood Member Thickness[3] (in)	Wood Species (Specific Gravity)[2]		
		HF/SPF (0.42)	DF (0.50)	SP (0.55)
#14 NOVA	3/4	150	215	260
	1 1/2	480	480	480
	2	480	480	480
#16 YUKON	3/4	135	190	230
	1 1/2	380	380	380
	2	380	380	380
#16 NOVA	3/4	180	255	310
	1 1/2	650	650	650
	2	650	650	655
#18 YUKON	3/4	180	255	310
	1 1/2	660	660	660
	2	660	660	660
#18 NOVA	3/4	210	295	360
	1 1/2	885	885	885
	2	885	885	885

SI: 1 in = 25.4 mm, 1 lb = 4.45 N

1. Tabulated pull-through values (P) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.
2. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
3. Pull-through design values apply to connections having a minimum wood member thickness provided in the table.

6.6 Where the application falls outside of the performance evaluation, conditions of use, and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science, and fire science.

7 Certified Performance[33]

7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.[34]

7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.[35]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 NOVA and YUKON Fasteners comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Bending yield in accordance with ASTM F1575.

8.1.2 Tensile strength in accordance with AISI S904.

8.1.3 Shear strength in accordance with AISI S904.

8.1.4 Lateral resistance in accordance with ASTM D1761 and NDS.

8.1.5 Withdrawal strength in accordance with ASTM D1761 and NDS.

8.1.6 Head pull-through in accordance with ASTM D1761 and NDS.

8.1.7 Corrosion resistance of fasteners meeting or exceeding the protection afforded hot-dipped galvanized fasteners in accordance with ASTM A153, Class D.

8.2 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[36] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[37] respectively.

8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which is also its areas of professional engineering competence.

8.4 Any regulation specific issues not addressed in this section are outside the scope of this report.

9 Installation

9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report, and the applicable building code.

9.2 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.

9.3 Minimum penetration is 1", unless otherwise stated in this report. Install fasteners with head flush to the surface of the wood member.

9.4 Lead holes are not required.

9.5 Screws shall be installed with the appropriate rotating powered driver.

9.6 Minimum requirements for screw spacing, edge distance and the end distance shall be in accordance with **Table 7**.

Table 7. NOVA and YUKON Fasteners Spacing, Edge Distance, and End Distance Requirements,[1] (inches)

Connection Geometry	#14	#16	#18
Edge Distance – Load in any direction	1/2	5/8	
End Distance – Load parallel to grain, towards end	2 5/8	3 1/8	3 1/2
End Distance – Load parallel to grain, away from end	1 3/4	2 1/8	2 3/8
End Distance – Load perpendicular to grain	1 3/4	2 1/8	2 3/8
Spacing between Fasteners in a Row – Parallel to grain	2 5/8	3 1/8	3 1/2
Spacing between Fasteners in a Row – Perpendicular to grain	1 3/4	2 1/8	2 3/8
Spacing between Rows of Fasteners – In-line	7/8	1 1/8	1 1/4
Spacing between Rows of Fasteners – Staggered[2]	1/2	5/8	

SI: 1 in = 25.4 mm

1. Edge distances, end distances, and spacing of fasteners shall be sufficient to prevent splitting of the wood or as shown in this table, whichever is the more restrictive.
2. Values for *"Spacing between Rows of Fasteners – Staggered"* apply where the screws in adjacent rows are offset by one-half of the *"Spacing between Fasteners in a Row"*.

10 Substantiating Data

10.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:

10.1.1 Bending yield testing in accordance with ASTM F1575.

10.1.2 Shear and tensile testing in accordance with ASTM S904.

10.1.3 Lateral strength testing in accordance with ASTM D1761.

10.1.4 Withdrawal strength testing in accordance with ASTM D1761.

10.1.5 Head pull-through testing in accordance with ASTM D1761.

10.1.6 Corrosion resistance testing in accordance with ASTM B117.

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or an RDP. Accuracy of external test data and resulting analysis is relied upon.

10.3 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.

10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.

10.5 *Testing and Engineering Analysis:*

10.5.1 The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[38]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for NOVA and YUKON Fasteners on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, NOVA and YUKON Fasteners have performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, NOVA and YUKON Fasteners shall be approved for the following applications:

11.2.1 The reference design value properties defined herein for use in accordance with the applicable code.

11.3 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Screw Products, Inc.

11.4 IBC Section 104.2.3[39] (IRC Section R104.2.2[40] and IFC Section 104.2.3[41] are similar) in pertinent part state:

> **104.2.3 Alternative Materials, Design and Methods of Construction and Equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

11.5 **Approved:**[42] Building regulations require that the building official shall accept duly authenticated reports.[43]

11.5.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited.

11.5.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce.

11.5.3 Federal law, Title 18 US Code Section 242, requires that, where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

11.6 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB Accredited Product Certification Body – Accreditation #1131.

11.7 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[44]

12 Conditions of Use

12.1 Material properties shall not fall outside the boundaries defined in **Section 6**.

12.2 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.

12.3 Moisture content shall be less than or equal to nineteen percent (19%) for sawn lumber.

12.4 Use of fasteners in locations exposed to saltwater or saltwater spray is outside the scope of this evaluation report.

12.5 When required by adopted legislation and enforced by the building official, also known as the Authority Having Jurisdiction (AHJ) in which the project is to be constructed:

12.5.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.

12.5.2 This report and the installation instructions shall be submitted at the time of permit application.

12.5.3 These innovative products have an internal quality control program and a third-party quality assurance program.

12.5.4 At a minimum, these innovative products shall be installed per **Section 9**.

12.5.5 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.

12.5.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

12.5.7 The application of these innovative products in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2, and any other regulatory requirements that may apply.

12.6 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3,"* all of IBC Section 104, and IBC Section 105.3.

12.7 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).

12.8 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

13 Identification

13.1 The innovative products listed in **Section 1.1** are identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.

13.2 Additional technical information can be found at www.screw-products.com.

14 Review Schedule

14.1 This report is subject to periodic review and revision. For the latest version, visit www.drjcertification.org.

14.2 For information on the status of this report, please contact DrJ Certification.

Issue Date: May 18, 2021
Subject to Renewal: July 1, 2026

FBC Supplement to Report Number 2010-03

REPORT HOLDER: Screw Products, Inc.

1 Evaluation Subject

1.1 NOVA and YUKON Fasteners

2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show NOVA and YUKON Fasteners, recognized in Report Number 2010-03, have also been evaluated for compliance with the codes listed below as adopted by the Florida Building Commission.

2.2 *Applicable Code Editions*

2.2.1 *FBC-B—20, 23: Florida Building Code – Building (FL 38731)*

2.2.2 *FBC-R—20, 23: Florida Building Code – Residential (FL 38731)*

3 Conclusions

3.1 NOVA and YUKON Fasteners, described in Report Number 2010-03, comply with the FBC-B and FBC-R and are subject to the conditions of use described in this supplement.

3.2 Where there are variations between the IBC and IRC and the FBC-B and FBC-R applicable to this report, they are listed here:

3.2.1 FBC-B Section 104 is reserved.

3.2.2 FBC-B Section 110.4 is reserved and replaces IBC Section 110.4.

3.2.3 FBC-B Section 104.6 is reserved and replaces IBC Section 104.4.

3.2.4 FBC-B Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.5 FBC-B Section 105.3 replaces IBC Section 105.3.

3.2.6 FBC-B Section 105.3.1 replaces IBC Section 105.3.1.

3.2.7 FBC-B Section 110.3 replaces IBC Section 110.3.

3.2.8 FBC-B Section 1707.1 replaces IBC Section 1707.1.

3.2.9 FBC-B Section 2304.10.5 replaces IBC Section 2304.10.6.

3.2.10 FBC-B Section 2306.1 replaces IBC Section 2306.1.

3.2.11 FBC-B Section 2306.3 replaces IBC Section 2306.3.

3.2.12 FBC-R Section R104 and Section R109 are reserved.

3.2.13 FBC-R Section R317.3 replaces IRC Section R304.3.

4 Conditions of Use

4.1 NOVA and YUKON Fasteners, described in Report Number 2010-03, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 2010-03.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.

Issue Date: May 17, 2021
Subject to Renewal: July 1, 2026

CBC and CRC Supplement to Report Number 2010-03

REPORT HOLDER: Screw Products, Inc.

1 Evaluation Subject

1.1 NOVA and YUKON Fasteners

2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show NOVA and YUKON Fasteners, recognized in Report Number, 2010-03 have also been evaluated for compliance with the codes listed below.

2.2 *Applicable Code Editions*

2.2.1 *CBC—19, 22: California Building Code (Title 24, Part 2)*

2.2.2 *CRC—19, 22: California Residential Code (Title 24, Part 2.5)*

3 Conclusions

3.1 NOVA and YUKON Fasteners, described in Report Number 2010-03, comply with the CBC and CRC and are subject to the conditions of use described in this supplement.

3.2 Where there are variations between the IBC and IRC and the CBC and CRC applicable to this report, they are listed here:

3.2.1 CBC Section 104.6 replaces IBC Section 104.4.

3.2.2 CBC Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.3 CBC Section 1707.1 replaces IBC Section 1707.1.

3.2.4 CBC Section 2304.10.6 replaces IBC Section 2304.10.6.

3.2.5 CBC Section 2306.3 replaces IBC Section 2306.3.

3.2.6 CRC Section R104.6 replaces IBC Section R104.4.

3.2.7 CRC Section R104.11 replaces IRC Section R104.2.2.

3.2.8 CRC Section R317.3 replaces IRC Section R304.3.

4 Conditions of Use

4.1 NOVA and YUKON Fasteners, described in Report Number 2010-03, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 2010-03.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of CBC and CRC, as applicable.

Issue Date: May 17, 2021
Subject to Renewal: July 1, 2026

LABC and LARC Supplement to Report Number 2010-03

REPORT HOLDER: Screw Products, Inc.

1 Evaluation Subject

1.1 NOVA and YUKON Fasteners

2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show NOVA and YUKON Fasteners, recognized in Report Number 2010-03, have been evaluated for compliance with the codes listed below as adopted by the Los Angeles Department of Building and Safety (LADBS).

2.2 *Applicable Code Editions*

2.2.1 *LABC—20, 23: Los Angeles Building Code*

2.2.2 *LARC—20, 23: Los Angeles Residential Code*

3 Conclusions

3.1 NOVA and YUKON Fasteners, described in Report Number 2010-03, comply with the LABC and LARC and are subject to the conditions of use described in this supplement.

3.2 Where there are variations between the IBC and IRC and the LABC and LARC applicable to this report, they are listed here:

3.2.1 LABC Section 104.2 replaces IBC Section 104.

3.2.2 LABC Section 104.2.3 replaces IBC Section 104.4.

3.2.3 LABC Section 104.2.6 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.4 LABC Section 106.3.1 replaces IBC Section 105.3.

3.2.5 LABC Section 108.1 replaces IBC Section 110.4.

3.2.6 LABC Section 108.5 replaces IBC Section 110.3.

3.2.7 LABC Section 1707.1 replaces IBC Section 1707.1.

3.2.8 LABC Section 2304.10.6 replaces IBC Section 2304.10.6.

3.2.9 LABC Section 2306.3 replaces IBC Section 2306.3.

3.2.10 LARC Section 104.2.6 replaces IRC Section R104.2.2.

3.2.11 LARC Section 108.1 replaces IRC Section R109.2.

3.2.12 LARC Section R317.3 replaces IRC Section R304.3.

4 Conditions of Use

4.1 NOVA and YUKON Fasteners, described in Report Number 2010-03, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 2010-03.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of LABC Chapter 16 and Chapter 17, as applicable.

Notes

1 For more information, visit drjcertification.org or call us at 608-310-6748.

2 2018 IBC Section 2304.10.5

3 2021 IRC Section R317.3

4 2018 IBC Section 2304.10.5

5 2021 IRC Section R317.3

6 Capitalized terms and responsibilities are defined pursuant to the applicable building code, applicable reference standards, the latest edition of TPI 1, the NDS, AISI S202, US professional engineering law, Canadian building code, Canada professional engineering law, Qualtim External Appendix A: Definitions/Commentary, Qualtim External Appendix B: Project/Deliverables, Qualtim External Appendix C: Intellectual Property and Trade Secrets, definitions created within Design Drawings and/or definitions within Reference Sheets. Beyond this, terms not defined shall have ordinarily accepted meanings as the context implies. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

7 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1702

8 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://www.justice.gov/atr/mission and https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

9 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests

10 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

11 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20make%2C%20or%20cause%20to%20be%20made%2C%20the%20necessary%20tests%20and%20investigations%3B%20or%20the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.2.3.

12 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4.2

13 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_agency

14 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_source

15 https://www.law.cornell.edu/uscode/text/18/1832 (b) Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of $5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

16 https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/

17 https://www.cbitest.com/accreditation/

18 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.1:~:text=directed%20to%20enforce%20the%20provisions%20of%20this%20code

19 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3 AND https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#105.3.1

20 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

21 https://iaf.nu/en/about-iaf-mla/#:~:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%2C%20it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

22 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

23 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission

24 Unless otherwise noted, the links referenced herein use un-amended versions of the 2024 International Code Council (ICC) 2024 International Code Council (ICC) model codes as foundation references. Mississippi versions of the IBC 2024 and the IRC 2024 are un-amended. This material, product, design, service and/or method of construction also complies with the 2000-2012 versions of the referenced codes and the standards referenced therein. As pertinent to this technical and code compliance evaluation, CBI and/or DrJ staff have reviewed any state or local regulatory amendments to assure this report is in compliance.

25 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by the local jurisdiction. https://up.codes/codes/general

26 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by state. https://up.codes/codes/general

27 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14

28 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

29 All references to the FBC-B and FBC-R are the same as the 2024 IBC and 2024 IRC unless otherwise noted in the Florida Supplement at the end of this report.

30 All references to the CBC and CRC are the same as the 2024 IBC and 2024 IRC unless otherwise noted in the CBC and CRC supplement at the end of this report.

31 All references to the LABC and LARC are the same as the 2024 IBC and 2024 IRC unless otherwise noted in the LABC and LARC supplement at the end of this report.

32 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#listed AND https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#labeled

33 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4

[34] https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

[35] https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur

[36] Qualification is performed by a legislatively defined Accreditation Body. ANSI National Accreditation Board (ANAB) is the largest independent accreditation body in North America and provides services in more than 75 countries. DrJ is an ANAB accredited product certification body.

[37] https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

[38] See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

[39] 2021 IBC Section 104.11

[40] 2021 IRC Section R104.11

[41] 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

[42] Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

[43] https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

[44] Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.